



Weathershield™ Cellulose Insulation

Technical Data Sheet

| SPECIFICATIONS | WEATHERSHIELD™ CELLULOSE INSULATION |
|---------------------|-------------------------------------------------------------------------------------------------------------------|
| Packaging: | 25 LBS/11.34 Bag |
| Product Identifier: | Cellulose Fibre Insulation (CFI) |
| Product Type: | Loose-fill Thermal and Acoustical insulation |
| Description: | Fiberized paper treated with fire retardants |
| Design Density: | Attics: 24.9kg/m ³ 1.6lb/cu.ft |
| Manufactured By: | CCI Manufacturing Inc. 16355-130 Avenue Edmonton, Alberta T5V 1K5 T: (780) 453-3610 F: (780) 447-2443 |

DESCRIPTION

WEATHERSHIELD™ is a loose-fill fibrous insulation type manufactured from selected paper stock that is chemically treated with non-toxic additives for fire resistance/retardation, as well as pest and moisture resistance. Each bag of WEATHERSHIELD insulation displays UL's ECOLOGO™ certification mark for its recognition as an environmentally sustainable product.

COMPOSITION

WEATHERSHIELD™ is manufactured from selected organic and recycled fibres that are impregnated with additives to remove moisture, mould, wood decay, insects, vermin, corrosion and combustion.

Cellulose Fibres (recycled paperstock): C₆H₁₀O₃
 Boric Acid: H₃BO₃
 Ammonium Sulphate: (NH₄)₂SO₄

REQUIREMENT STANDARDS

WEATHERSHIELD™ is manufactured to meet requirements based on the following standards:

1. Canadian Construction Materials Centre (CCMC)

"Standards for Cellulose Fibre Insulation (CFI) for Buildings CAN/ULC S703-09

2. CCMC Evaluation Listing 09217-L
3. ISO 9001 International Standards
4. UL ECOLOGO™ certification

INSTALLATION

WEATHERSHIELD™ may be hand poured or pneumatically placed using a blowing machine and delivery hose (preferable). Machine application ensures that the material is properly conditioned, and placed at the required design density. WEATHERSHIELD™ does not settle below its designed density or lose its fire-retardant properties with the passage of time. Thermal resistance and noise absorption properties are permanent features of this product

APPLICATION

WEATHERSHIELD™ is a loose-fill or spray applied thermal and acoustical insulation. Loose-fill is appropriate for horizontal or moderately sloped attic areas up to 4:12 pitch. Injection may be used to fill areas such as flat or sloped ceiling and vertical walls. Spray applied may be used in open stud cavities or steeply sloped attic surfaces. Choose the most appropriate method of installation to achieve the desired thermal and/or acoustical performance. WEATHERSHIELD™ can be used in new construction or to retrofit existing structures/dwellings.





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LIMITATIONS

Like other insulation types, WEATHERSHIELD™ should not be placed in direct contact with heat sources such as chimney flues, electric motors or light fixtures. Unless CSA approved for use with thermal insulation, do not cover recessed light fixtures with any type of insulation as excessive heat build-up may occur. An air space of 6" or more is required between the fixture and its protective barrier. This consideration also applies to any other heat source such as fan motors, transformers, or incandescent trouble lights. Similarly, do not permit insulation to directly cover a chimney or flue. Do not fill fireplace or furnace chases. Maintain the minimum clearance specified by the building code or inspector having jurisdiction. WEATHERSHIELD™ should not be used where the ambient temperature is continuously above 90°C (or 194°F).

TECHNICAL DATA

CAN/ULC Test Criteria: CAN/ULC S703-09

| | |
|-------------------------------------------------|------------------------|
| CAN/ULC S102 | FSC 20 |
| CAN/ULC S102.2 | FSC 120 |
| Open Flammability (Permanence) | Passed |
| Open Flammability (W/cm ²) | Passed |
| Moisture Vapour Absorption | Passed |
| Fungal Growth | Passed |
| Limiting Design Density (Type 1 Open Spaces) | 27.23kg/m ³ |
| Corrosiveness | Passed |
| Smoulder Resistance | Passed |
| Thermal Resistivity | Passed |

THERMAL RESISTANCE COMPARISON

The following values for thermal resistance of cellulose insulation at seasonal temperature extremes were taken from the ASHRAE Handbook of Fundamentals (Re: BNL50862):

| | |
|----------------------|--------------------|
| Winter Value at 5°C | RSI 0.678 (R 3.85) |
| Design Value at 24°C | RSI 0.652 (R 3.70) |

Summer Value at 43°C

RSI 0.629 (R 3.57)

The above value indicated the change in WEATHERSHIELD™ R-value between winter and summer attic temperatures is only 7.1%, whereas a continuation of the tables for other types of insulation indicates the R-value loss for mineral fibre under the same circumstances would be 21.4%.

ACOUSTICAL PROPERTIES

WEATHERSHIELD™ offers superior qualities for improving noise suppression in wall, floor or ceiling construction. There are 4 primary factors to consider: Mass; Dampening; Absorption; and Sealing.

1. Mass (Density): Increased mass per unit of thickness of WEATHERSHIELD™ compared to other types of insulation adds to the overall effectiveness of a wall, floor or ceiling assembly in improving STC (Sound Transmission Class) value.
2. Dampening: Unlike fibrous batts or foam boards, WEATHERSHIELD™ incorporates itself as an integral part of a wall, floor or ceiling assembly. The natural ability of WEATHERSHIELD™ to fill crevices and gaps produces a significant improvement in the sound dampening characteristics of the assembly.
3. Absorption: WEATHERSHIELD™, because of the unique porosity of its interwoven fibres, will exhibit a NRC (Noise Reduction Coefficient) of 0.75 at a 25 mm (1 inch) thickness. Increased attenuation in both low and high absorption within an enclosed wall or ceiling cavity.
4. Sealing: The field of reliability for WEATHERSHIELD™ natural noise reduction capabilities are realized through its natural ability to fill crevices and voids normally occurring in wall, floor, ceiling or attic construction. When installed correctly and according to applicable Building Codes, WEATHERSHIELD™ will provide a comprehensive seal around complex shapes and structures thereby ensuring its ability to minimize sound transmission through such space interruptions.





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FILTRATION PROPERTIES

WEATHERSHIELD™ offers the added advantage of keeping a home cooler during the summer season. There is a natural movement of air either by convection currents of air from warm to cold environments or movement by pressure differentials. WEATHERSHIELD™, due to its perfect fit and greater mass, inhibits this air movement. Other types of insulation may offer a poor fit and in testing have shown to lose up to half their insulation values. In retrofit conditions where additional attic insulation is desired, WEATHERSHIELD™ can be used as a blanket cover to significantly reduce air movement, fill gaps in existing insulation (despite type), and between the insulation and adjacent framing members. This can substantially increase the overall insulation value.

THERMAL RESISTANCE VS. APPLIED BULK DENSITY

WEATHERSHIELD™ maintains an almost constant R-value over the full range of densities at which it can be installed, whereas light density glass fibre loose-fill insulation suffers a drastic loss in R-value if the density is only slightly less (fluffing) than the required density.

FIRE RESISTANCE

WEATHERSHIELD™ exhibits fire resistance capabilities identified in the physical properties chart. It will not melt or degrade as most other insulation types will when exposed to flame or high temperatures. Because it will only char under direct fire exposure, it can provide heat protection longer to adjacent building materials, and therefore allow building occupants more time to escape than would many other insulation materials.

MOISTURE

WEATHERSHIELD™ is able to dissipate excess moisture and maintain a moderate range in moisture content. Canadian homes and buildings can experience a loss of warm moist air from the interior environment to the colder exterior air by several means such as unsealed, torn, or discontinuous vapour barrier, or by piping or electrical wiring boxes penetrating the vapour barrier. During the heating season, these disruptions to the vapour barrier permit moisture to the insulation layer or on the cold roof or wall sheathing.

To combat this occurrence, insulation should be chosen that can help dissipate that moisture. WEATHERSHIELD™ is able to transport moisture to a surface where it can evaporate which is important for keeping moisture levels low and insulation effectiveness high, while preventing mould growth from forming on nearby building structures.

INSTALLATION GUIDE

Available for download on our website, or by request to info@weathershield.ca or info@can-cell.com

AVAILABILITY AND COSTS

WEATHERSHIELD™ cellulose insulation is available for shipping throughout Canada. Please contact our Sales Representatives to receive additional information, pricing and delivery schedules. We offer high quality insulation material at competitive pricing for comparative performance features.

WARRANTY

WEATHERSHIELD™ is guaranteed to meet published specifications and standards. The applicator must warrant a specific product installation.

MAINTENANCE

WEATHERSHIELD™ requires no specific maintenance. A building owner should periodically inspect the installation to ensure that traffic has not displaced the insulation or disturbed the natural attic ventilation or permitted the insulation to contact heat sources.

TECHNICAL SUPPORT

Technical data and test reports are available upon request to assist designers and applicators in addressing project needs.

